



First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list :

1922.

Sept. 2-17.... International Concours Aviatique, Rotterdam
Sept. 8-10.... 1,000 Miles Race round Britain for the King's Trophy

Sept. Tyrrhenian Cup, Italy

Sept. Italian Grand Prix

Sept. or Oct. R.Ae.C. Race Meeting, at Waddon

Sept. 30 Coupe Deutsch (300 kil.)

Oct. 16-21 Daily Mail £1,000 Gliding Competition

Dec. 15-

Jan. 2 Paris Aero Exhibition

1923.

June International Air Congress, London
Dec. 1 Entries Close for French Aero Engine Competition

1924.

Mar. 1 French Aero Engine Competition

Mar. 15 Entries close for Dutch Height Indicator Competition



EDITORIAL COMMENT.

ATTENTION has recently been called, somewhat dramatically, to the state of ineffectiveness into which the R.A.F. in India has fallen. Letters from pilots, all the more poignant on account of the fact that their writers are now dead, have been published, which throw the strongest light upon the handicaps, not to use stronger words, under which our gallant lads serving on the N.W. frontier are working. Some of these have been able to joke about matters which are tragic enough in all conscience ; that is the spirit which prevails throughout the R.A.F. But between the lines of even such letters can be read the urgent call for remedies, for a realisation of the true state of affairs, and for bare justice at least. The work is sufficiently arduous in itself, and it behoves those in authority to see that it is not made unbearable by want of equipment that is essential.

It is in the matter of allocating the blame that we cannot agree with some of the critics, who appear to have used the opportunity to find fault with departments which have not been responsible for the deplorable state of things, which no one has denied undoubtedly does obtain. The position, stated within the narrow limits of space at our disposal, is this, that the Indian Government indents on the Air Ministry for machines, spares and men, and that when these have been supplied they pass from the control, and logically from the responsibility, of the Air Ministry. Matters such as condition and maintenance of material and operations carried out by the R.A.F. in India are under the control of the Indian Government and the Commander-in-Chief. As a matter of fact, the lack of spares, and other shortcomings, were known to the Air Ministry months ago, and the strongest representations were made to the Government of India. These having proved of no avail, Air Vice-Marshal Sir John Salmond was sent out to India to discuss the matter with the Indian authorities, and the report of his commission is expected to be published next month. In the

meantime, it is rather unprofitable to speculate upon details.

In its broader aspects the situation was put very ably, very soberly, and very logically by Lord Montagu of Beaulieu in a letter to *The Times*, in which he points out that Sir John Salmond has no doubt by now fully appreciated the difficulties, even if he has not as yet had time to remedy the defects. "It will be particularly interesting," Lord Montagu says, "if we can learn what his report has been to the Air Ministry, and whether he has told the Government of India in explicit terms that if they want an Air Force to operate in India it must be a real force and not a sham one, that it must have up-to-date equipment, that the *personnel* must be treated better than in the past, and that if the Air Force cannot be properly maintained it is better to have none at all."

Lord Montagu states that, with the financial stringency existing in India there have been considerable difficulties to be overcome. We agree entirely with Lord Montagu when he states, in this connection, that "In the absence of evidence to the contrary, I think we must assume that it is carelessness about the rupees in India rather than carelessness or callousness at the Air Ministry which has led to the recent deplorable casualties on the North-West Frontier."

The example thus provided by India might be taken to heart at home equally well. The R.A.F. has been left to carry on as best it may with obsolete or obsolescent machines, in the interests of economy. At one time the cry was "use the axe," and the Government was abused for not having used the axe sufficiently. It has been used with a vengeance on the R.A.F., with the result that, except for a few experimental machines, the R.A.F. is mounted on four-years-old machines, built of war material, "re-conditioned in the interests of economy." India has shown what sorts of results may be expected from economies of this kind. If the R.A.F. at home is not soon equipped with more modern *matériel*, we shall have similar things happening here. And, curiously enough, the people who are the loudest in their demands for economy are the first to cry out when accidents resulting from such economy occur. But, in all fairness, let us place the blame at the door of the right offenders, and not try to make a scapegoat of a department which is at the very least entitled to the benefit of the doubt.

The New Air Services

The announcement that new air services are about to be started, or, at any rate, a re-arrangement of services to take place, will be received with satisfaction by all who take an interest in commercial aviation. It has been evident for a considerable time that, although fortunately the traffic on the London-Paris route has been steadily increasing during the last couple of months, there was not, and could not be for a very long time, sufficient to keep three lines running in competition. From the technical point of view also, the continued running of services on the London-Paris route did not teach us anything we did not know two years ago. The ground organisation has been improved, and so have the aeroplanes themselves, but nothing has materialised which could not have been foreseen as a result of Mr. Holt Thomas' 1919 service.

General Sir Sefton Brancker has long realised

that the London-Paris line could not be the end-all of our civil aviation. In fact, at the last Air Conference he, as one of the critics, pointed out that the result of continued activity concentrated on that route could only lead to duplication and competition, and that of the latter we already had sufficient from France. In his capacity of Director of Civil Aviation General Brancker has worked for the elimination of competition, and, as a result of his many discussions with operating firms, the announcement can now be made that the three air lines which have been, of necessity, working against one another will now be spread over three entirely different routes.

Handley Page Transport will continue to run the London-Paris service. The Instone Air Line will operate the London-Brussels, with an extension to Cologne in view, and the Daimler Hire Air Service will break new ground by inaugurating a new service, between London and Berlin, whilst a further new service is promised for the spring.

As we have long maintained that the continuance of the London-Paris service by three subsidised companies could lead nowhere, we are naturally gratified at the re-organisation foreshadowed, and we feel certain that this change cannot fail to be of benefit to aviation in general. If and when an air mail service to India is started, it will, if the shortest and quickest route is to be followed, go over Central Europe, and the lines to Berlin may then well prove of great importance. The direct route would pass over Brussels, Frankfurt and Nuremberg to Vienna.

We understand that the new service to Berlin is to be opened shortly, and that a flight will be made each day in each direction, using D.H.34 machines. The fares have not been definitely settled, but it is stated that they will be but little higher than those on the London-Paris service. If that is correct, there should be no lack of support, since it is contemplated to do the journey in seven or eight hours, while the journey by train takes approximately twenty-four hours. We congratulate the D. of C.A. and the operating firms on their decision.

The Circuit of Britain

Tomorrow (Friday) morning at nine the first machine, the Avro Baby, will start for the flight around Britain for the King's Cup. It is a matter for congratulation that twenty-three machines have been entered for the race, and the variety represented will be gathered when it is pointed out that these include no less than nineteen different types of machines, ranging from small single-seaters with engines of 35 h.p. only to amphibian flying boats with 450 h.p. and twin-engined machines of 550 h.p. There can thus be no complaint on the score of variety, and the handicapping must have been a matter of the greatest difficulty. We trust that luck may favour the race, and that no untoward incidents will mar the proceedings.

In another part of this issue of *FLIGHT* we publish scale drawings and photographs of the machines. The scale drawings are all reproduced to a uniform scale, so that comparison should be easy and readers able to see at a glance which are small machines and which are large ones. Identification is a matter of difficulty when the machines are flying overhead at a considerable altitude, but for this purpose also our small scale drawings should be of assistance, showing as they do the main characteristic features of the different types.

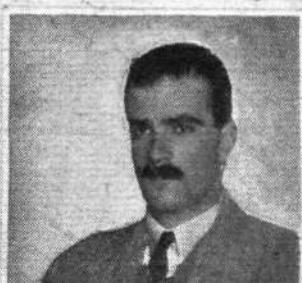
THE KING'S CUP RACE



A



B



C



D



E



F



G



H



I



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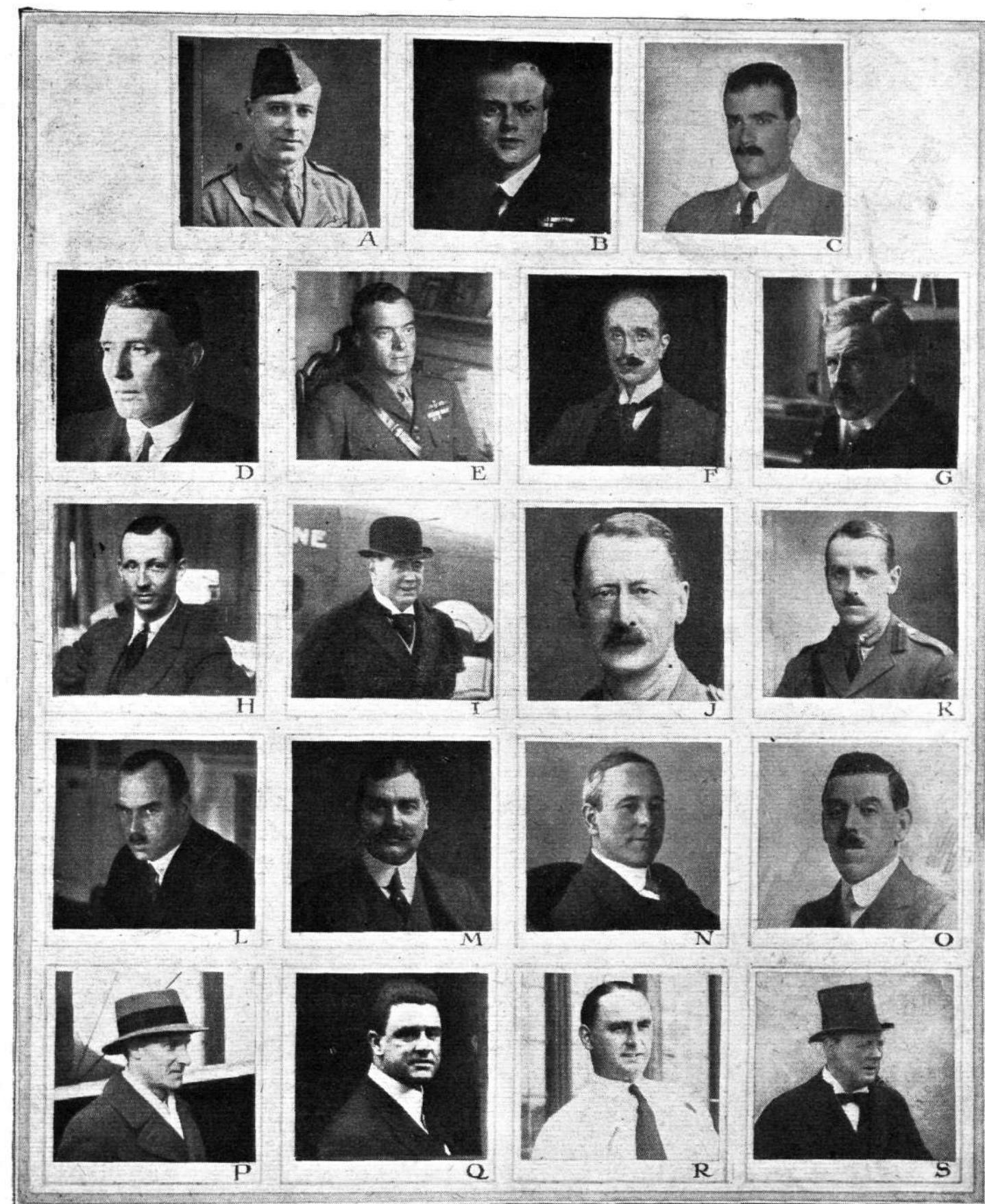
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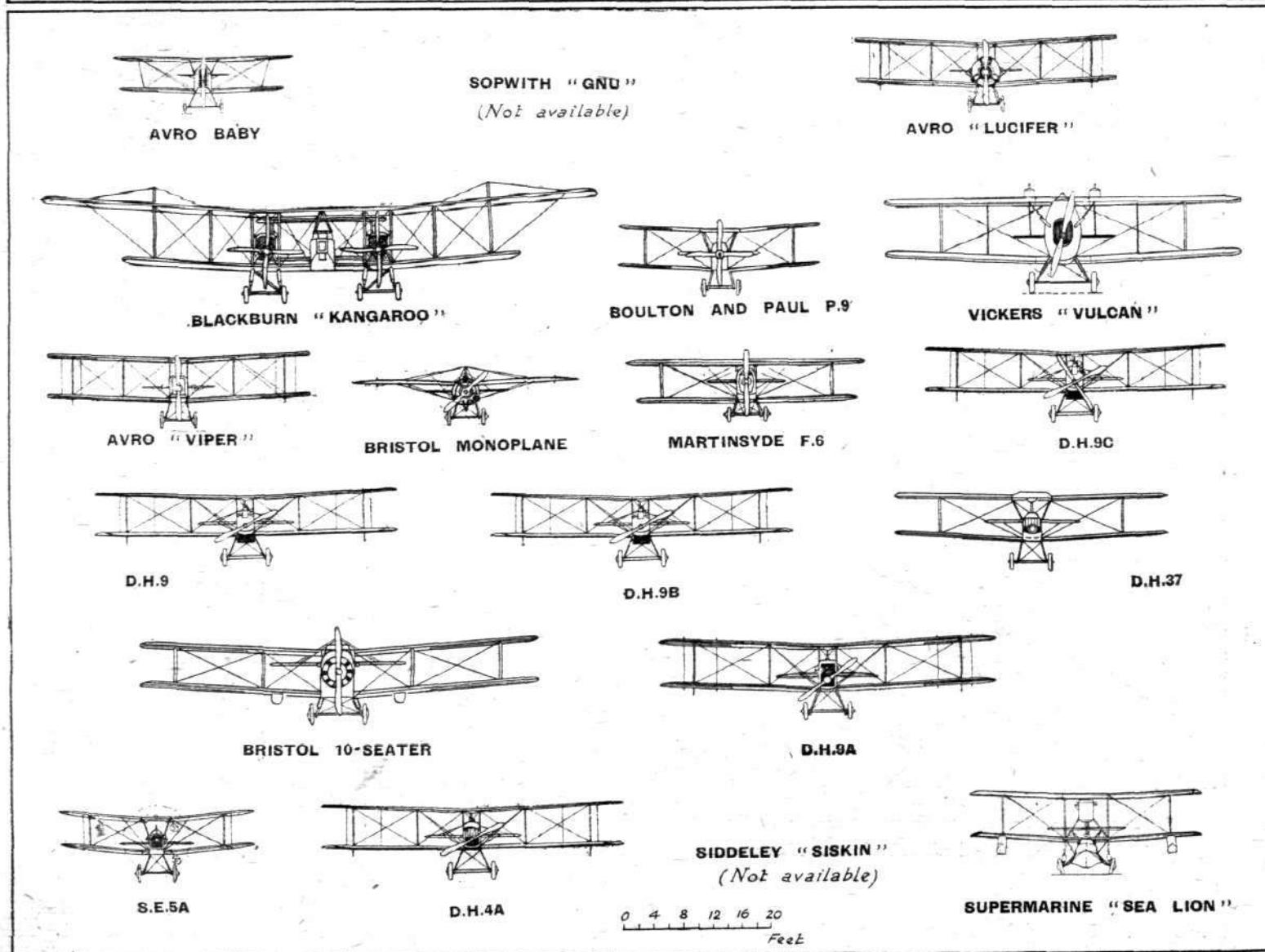
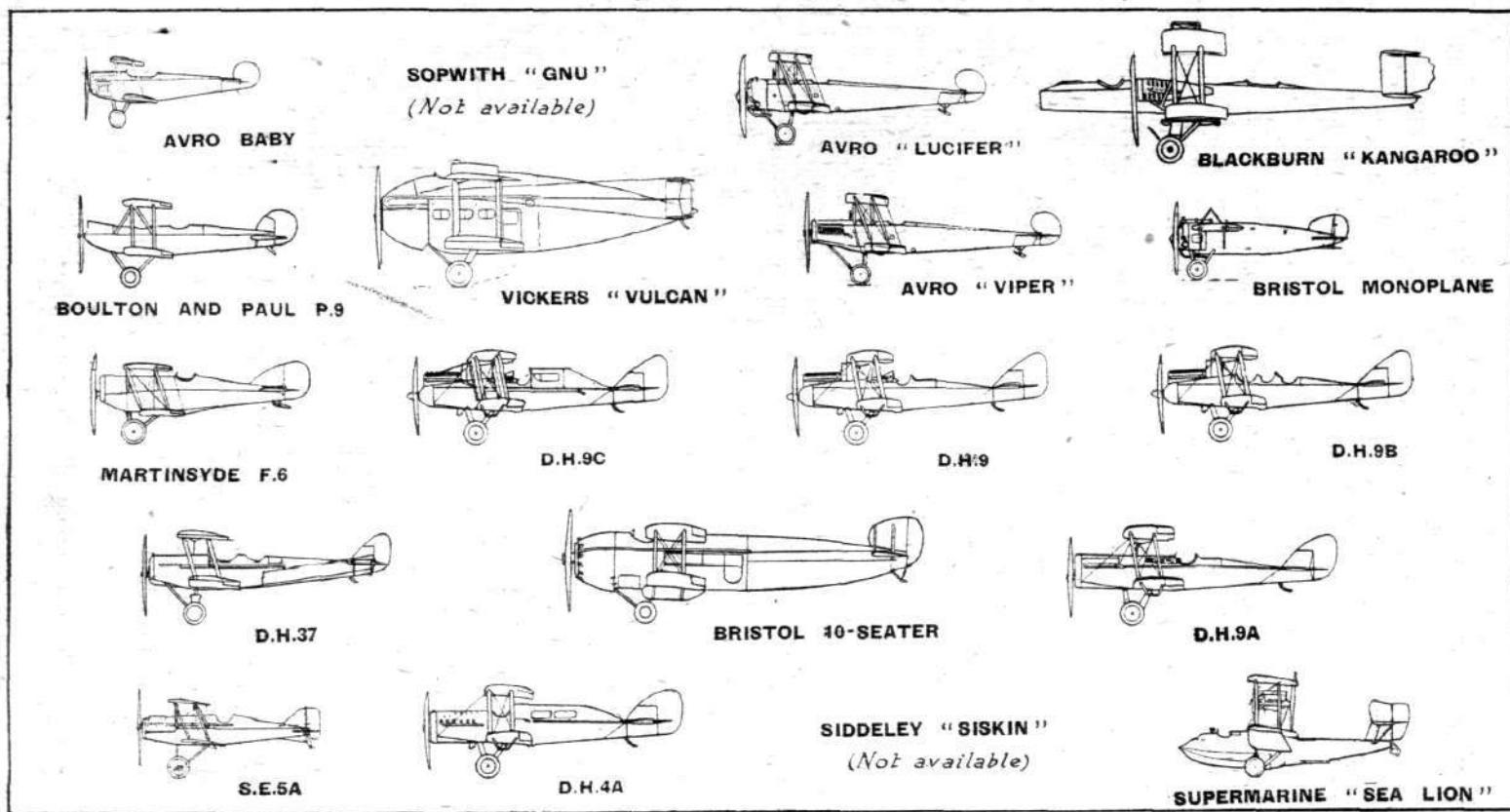
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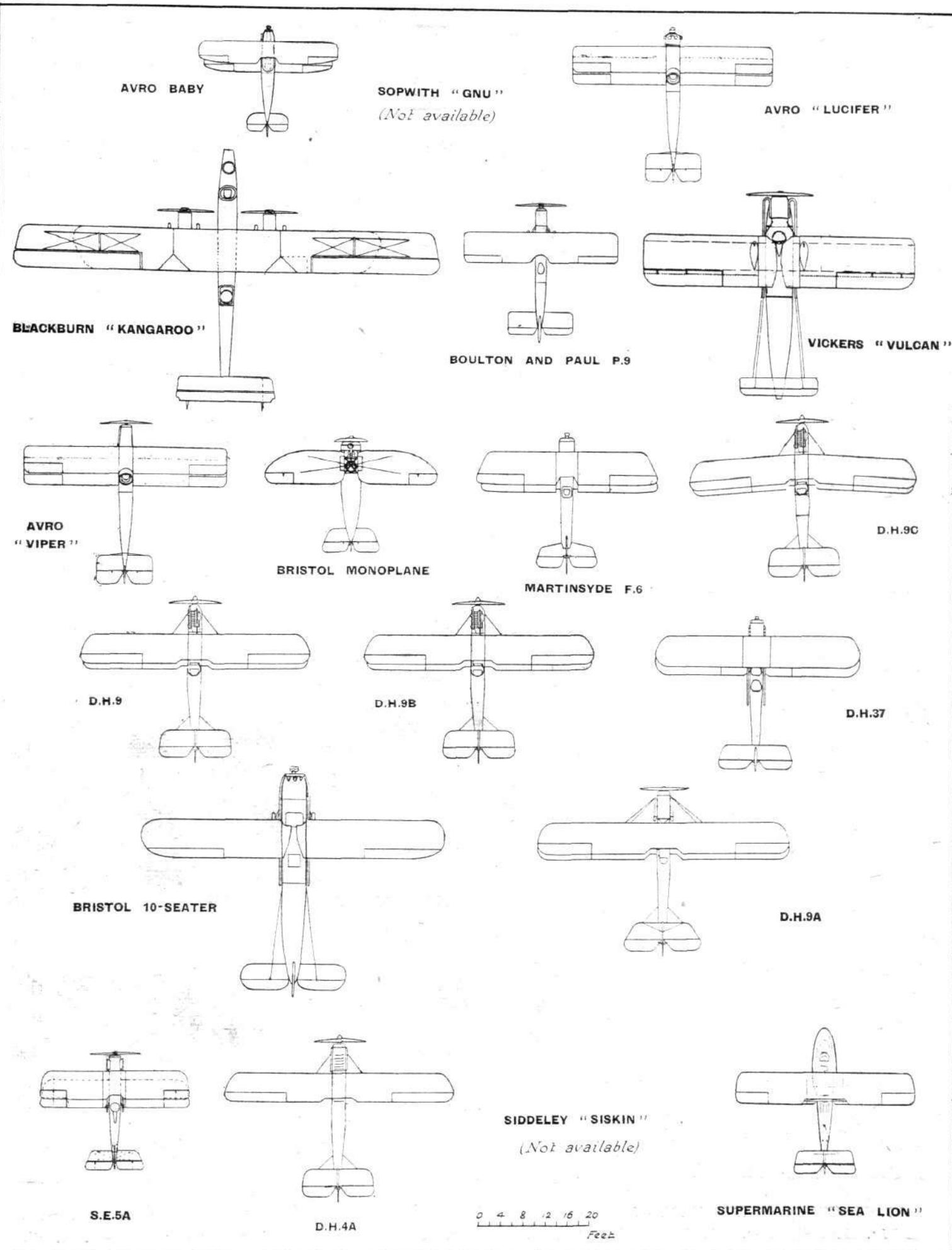
S



Some of the entrants of machines for the Circuit of Britain, arranged in the order in which the entries were received. A, Brigadier-General J. G. Weir. B, His Grace the Duke of Sutherland. C, Mr. A. S. Butler. D, Lieut.-Colonel F. K. McClean, A.F.C. E, Lieut.-Colonel J. E. Tennant, D.S.O., M.C. F, Mr. Douglas Vickers, M.P., J.P. G, Mr. J. D. Siddeley, C.B.E. H, Mr. F. P. Raynham. I, Sir Samuel Instone. J, Lieut.-Colonel J. Barrett-Lennard, C.B.E. K, Lieut.-Colonel M. O. Darby, O.B.E. L, Sir Henry White Smith, C.B.E. M, Sir William Letts, K.B.E. N, Mr. A. V. Roe. O, Mr. John Lord. P, Capt. G. de Havilland. Q, Mr. Hubert Scott-Paine. R, Major J. C. Savage. S, The Right Hon. Winston Churchill, M.P.



THE CIRCUIT OF BRITAIN.—Side and Front Elevations of the competing machines, drawn to a uniform scale to facilitate comparison. For further particulars see pp. 512-515.



THE CIRCUIT OF BRITAIN.—Plan views of the competing machines, drawn to a uniform scale. For further particulars see pp. 512-515.

THE KING'S CUP RACE



THE CIRCUIT OF BRITAIN.—Portraits of some of the competing pilots, arranged in the order of starting.
 A, Mr. Bert Hinkler. B, Flight-Lieut. W. H. Longton. C, Lieut.-Colonel Spenser Grey. D, Mr. R. W. Kenworthy. E, Lieut.-Colonel J. E. Tennant. F, Capt. S. Cockerell. G, Capt. F. C. Broome. H, Flight-Lieut. R. A. de H. Haig. I, Mr. F. P. Raynham. J, Flight Officer L. Hamilton. K, Capt. A. F. Muir. L, Mr. M. Piersey. M, Mr. A. J. Cobham. N, Mr. A. S. Butler. O, Mr. C. F. Uwins. P, Mr. H. H. Perry. Q, Mr. C. C. Turner. R, Mr. F. L. Barnard. S, Mr. F. Courtney. T, Mr. H. C. Biard.



**The Royal Aero Club
of the United Kingdom**

OFFICIAL NOTICES TO MEMBERS

THE KING'S CUP
Circuit of Britain Air Race, September 8-9, 1922.

Entries :

Entrant.	Pilot.	Machine.	Engine.	Handicap.	
				Sect. I †	Sect. II ‡
				h. m. s.	h. m. s.
1 EAUM	Henry Fildes, M.P.	Squad-Ldr. H. J. Payn	Avro Baby ..	35 h.p. Green ..	2 21 10 2 29 2
2 EAXL	Sir William Letts, K.B.E.	B. Hinkler ..	Avro Baby ..	35 h.p. Green ..	2 2 54 2 9 46
3 EAQP	Lt.-Col. F. K. McClean, A.F.C.	Fl.-Lt. W. H. Longton, D.F.C., A.F.C.	Sopwith Gnu ..	110 h.p. Le Rhone ..	1 56 12 2 2 41
4 EADA	John Lord ..	Major C. R. Carr ..	Avro Lucifer ..	100 h.p. Bristol Lucifer ..	1 46 43 1 52 40
5 EAMJ	Rt. Hon. Winston Churchill, M.P.	Lieut.-Col. Spenser D. A. Grey	Blackburn "Kangaroo"	2-275 h.p. Rolls-Royce ..	1 26 56 1 31 46
6 EASJ	Brig.-Gen. James G. Weir, C.M.G.	C. T. Holmes ..	Boulton and Paul P.9	90 h.p. R.A.F. 1A ..	1 19 18 1 22 43
7 EAUW	Sir Walter de Frece ..	R. W. Kenworthy	Blackburn "Kangaroo"	2-275 h.p. Rolls-Royce ..	1 16 52 1 21 10
8 EAWS	Lt.-Col. J. E. Tennant, D.S.O., M.C.	Lt.-Col. J. E. Tennant, D.S.O., M.C.	Boulton and Paul P.9	90 h.p. R.A.F. 1A ..	1 14 29 1 18 38
9 EBEM	Douglas Vickers, M.P., J.P.	Capt. S. Cockerell, A.F.C.	Vickers Vulcan	350 h.p. Rolls-Royce ..	1 6 29 1 10 12
10 EAPR	A. V. Roe ..	Capt. F. C. Broome	Avro Viper ..	200 h.p. Wolseley Viper ..	1 4 18 1 7 53
11 EAQP	Sir Henry White-Smith, K.B.E.	Rollo Amyatt de Haga Haig	Bristol ..	100 h.p. Bristol Lucifer ..	0 57 59 1 1 14
12 EBDK	F. P. Raynham ..	F. P. Raynham ..	Martinsyde F6	200 h.p. Wolseley Viper ..	0 56 58 1 0 9
13 EBEP	Sir G. Stanley White, Bart.	Cyril Frank Uwins	Bristol 10-seater Biplane	400 h.p. Bristol Jupiter ..	0 53 58 0 56 59
14 EBAX	Lady Anne Savile ..	Flying Officer Leslie Hamilton	D.H.9C ..	230 h.p. Siddeley Puma ..	0 49 9 0 51 54
15 EAAC	Capt. G. de Havilland ..	A. J. Cobham ..	D.H.9B ..	230 h.p. Siddeley Puma ..	0 45 27 0 47 59
16 EBEP	Duke of Sutherland ..	Capt. A. F. Muir ..	D.H.9 ..	230 h.p. Siddeley Puma ..	0 41 0 0 43 17
17 EBDO	A. S. Butler ..	A. S. Butler ..	D.H.37 ..	275 h.p. Rolls-Royce ..	0 40 8 0 42 22
18 EBEN	Lt.-Col. M. O. Darby, O.B.E.	M. Maurice Piercy	D.H.9 ..	230 h.p. Siddeley Puma ..	0 39 16 0 41 28
19 EBCG	Lt.-Col. John Barrett-Lennard, C.B.E.	H. H. Perry ..	D.H.9A ..	350 h.p. Rolls-Royce ..	0 35 5 0 37 2
20 EBDU	Major J. C. Savage ..	Capt. C. Turner ..	S.E. 5A ..	200 h.p. Wolseley Viper ..	0 24 14 0 25 34
21 EAMU	Sir Samuel Instone ..	F. L. Barnard ..	D.H.4A ..	350 h.p. Rolls-Royce ..	0 23 30 0 24 28
22 EBEU	J. D. Siddeley, C.B.E.	F. T. Courtney ..	Siskin ..	325 h.p. Jaguar ..	Scratch
—	H. Scott-Paine* ..	H. C. Biard ..	Sea Lion II ..	450 h.p. Napier Lion ..	Scratch

* Withdrawn.

† Section I.—Waddon-Birmingham-Newcastle-Glasgow.

‡ Section II.—Glasgow-Manchester-Bristol-Waddon.

THE CIRCUIT OF BRITAIN

Race for the King's

Cup, September 8-9

THE race for the Cup presented by His Majesty King George will start from Waddon Aerodrome tomorrow morning, when, at 9 a.m., the first machines, the two Avro Babies, will be given the signal to go. Two more entries have been received since the publication of the list in last week's issue of FLIGHT, bringing the total up to 23. It is extremely gratifying to find that so many machines will cross the starting line, and the race will certainly arouse very considerable interest all over the country, not only in the towns where landings are to be made, but also along the route followed, where doubtless thousands of spectators will watch the aeroplanes passing overhead and will try to identify them. We learn from the Royal Aero Club that no numbers will be carried on the machines, as it has been found that numbers are not easily identified unless the machines are flying relatively low. As landings and one-hour stops are compulsory at the intermediate landing grounds, there is no necessity for the machines to be identified *en route*. Since, however, at least as many people will have to be content with seeing the machines pass over as seeing them alight at and take off from the intermediate landing grounds, we have attempted in this issue of FLIGHT to assist identification by publishing plans, side and front elevations of the competing machines, all drawn to a uniform scale.

This system was first introduced in our "Milestones" series, and proved very popular, as it enables the relative size of machines to be seen at a glance. Furthermore, no single view of an aeroplane can adequately convey an idea of all

its characteristic features, this being possible only by giving all three views, which we have therefore decided to do. The result is that the views are necessarily small, but in order to illustrate the machines in somewhat more detail we are supplementing the scale drawings by photographs of the machines. The majority will already be well known to readers of this journal, as there are but few really new machines entered, but it is thought that the publication of the scale drawings and photographs may be of assistance to those not intimately acquainted with the various types. In this connection it should be pointed out that the photographs do not necessarily represent the actual individual machines entered, but merely the type to which they belong. Thus the photograph of the S.E.5A is not a photograph of the particular machine which will be flown by Mr. Turner, but merely represents the S.E.5A type.

The Race

As already mentioned, the race for the King's Cup will start from Waddon aerodrome at 9 a.m. on Friday, September 8, the machines after that time being sent off according to their handicap allowance. In above table, under the R.A.C. Notices, are set out the entrants and pilots, the machines and their engines and, in the last column, the handicap allowance which each receives. It is to be regretted that the "Sea Lion" has been withdrawn, as it would have been rather interesting to see one flying boat among so many land machines.

The first compulsory landing will be made at Birmingham

Castle Bromwich), and the machines will spend 1½ hour here before being allowed to start. That interval having elapsed, the machines will be started off, and if not ready any further time spent here will count as flying time. The next "port of call" will be Newcastle, where the Town Moor is the aerodrome selected. Again a stop of 1½ hour is compulsory before the machines leave for Glasgow (Renfrew). At the latter place competitors must stop for the night, the start being given to the first machine next morning (Saturday, September 9) at 9 a.m.

On the second day the first intermediate landing ground is at Alexandra Park, Manchester, and having spent their prescribed time there, machines will leave for Bristol (Filton). Leaving Filton 1½ hour later, the machines will head for Waddon, where the finish takes place, probably some time between 3 p.m. and 4 p.m. At Waddon there is little doubt large crowds will assemble to see the finish of the race, and if the handicapping is good and machines fly reasonably consistently,

there should be a close finish, although it will be realised that in a race of this length it is extremely difficult to ensure that several machines come in close together. Nevertheless, it will be very interesting to witness the finish, and we advise as many of our readers as can manage to do so to get out to Waddon in good time, as there is always the possibility of one or more machines making better time than anticipated.

In order to prevent visitors to Waddon on Saturday from getting bored while waiting for the King's Cup machines to come in, the Royal Aero Club has made arrangements for Flying Officer G. R. Scholefield from Farnborough to give exhibition flights during the afternoon, and Mr. Rex Stocken, of the Aircraft Disposal Company, will also assist in keeping visitors amused, ably seconded by Mr. S. H. Hayns. If the race machines should be a little late in coming in there should thus not be any lack of interest, especially as the ordinary business of the aerodrome, arrival and departure of machines for the Continent, will be going on as usual.

THE MACHINES

The scale drawings (see pp. 508 and 509) of the machines entered are arranged according to handicap allowance. Thus the slowest machine comes first, and the fastest, the "Sea Lion," which starts scratch, comes last.*

In the following notes the machines are arranged in alphabetical order for easy reference.

The Avro Baby.—Two machines of this type are entered, one by Sir William Letts, K.B.E., to be flown by Mr. Bert Hinkler, and one by Mr. Henry Fildes, M.P., to be piloted by Sqdn.-Ldr. H. Payn. The Avro Babies are fitted with Green engines of 35 h.p. only, but have some remarkable



Avro Baby, 35 h.p. Green.

performances to their credit. Thus Mr. Hinkler flew one of these machines from London to Turin non-stop, and in Australia the same pilot on the same machine made a non-stop flight of over 800 miles. Just recently a similar machine flew from London to Moscow—not, of course, without intermediate landings, but nevertheless a very fine performance. The Avro Baby was designed by Mr. Roy Chadwick, Chief Designer of A. V. Roe and Co.

The Avro "Viper."—In its general outlines the Avro Viper resembles the famous Avro 504, except that it is fitted with a 200 h.p. Wolseley "Viper" engine. This naturally changes the nose of the machine somewhat, a nose radiator being placed in front of the engine. The under-carriage is of the Vee type, instead of the wheel-and-skid type which is so

* At the moment of going to press we learn this machine will not start.

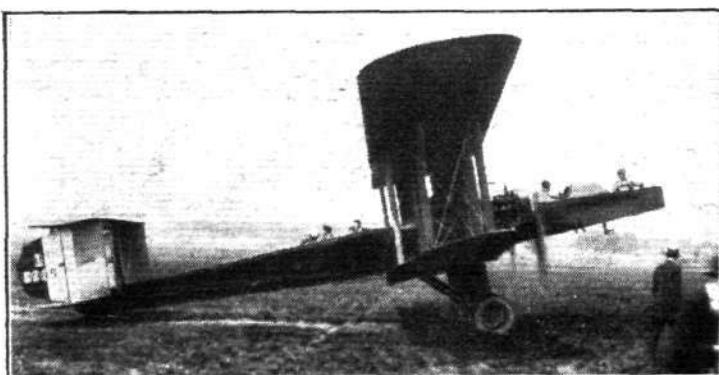


The Avro-Viper, 200 h.p. Wolseley "Viper."

characteristic of the standard Avro 504. The Avro-Viper has been entered for the race by Mr. A. V. Roe, and it will be piloted by Capt. F. C. Broome, the well-known Vickers pilot. This machine also was designed by Mr. Chadwick.

The Avro "Lucifer."—Except for the fact that it is fitted with one of the three-cylinder 100 h.p. Bristol "Lucifer" engines, this machine resembles the 504, and no detail reference need be made to it except to state that it is another instance of the extraordinary adaptability of the type 504. We can call to mind machines of this type fitted with 110 h.p. le Rhone, 180 h.p. le Rhone, 90 h.p. Renault, 200 h.p. Siddeley Lynx, 200 h.p. Wolseley Viper, and now the 100 h.p. Bristol "Lucifer." No wonder the machine, first designed in 1913, still survives as one of the finest all-round machines in existence. In the race the Avro "Lucifer," which has been entered by Mr. John Lord of A. V. Roe and Co., will be flown by Maj. C. R. Carr, who, it will be remembered, accompanied the late Sir Ernest Shackleton on his antarctic journey, the Avro seaplane which went out with them having, unfortunately, to be left behind at Cape Town, and therefore never getting an opportunity of showing the service it could do.

The Blackburn "Kangaroo."—As far as the Circuit of Britain is concerned, the Blackburn "Kangaroo" has the distinction of being the only twin-engined type entered. Fitted with two Rolls-Royce "Falcon" engines of 275 h.p. each, the machine was designed during the War as a bomber. The type has also been tried fitted with floats for use over the sea, and a later version was fitted with a cabin, for use as a commercial machine. In the race it will be easily distin-



The Blackburn "Kangaroo," 2-275 h.p. Rolls-Royce "Falcons."

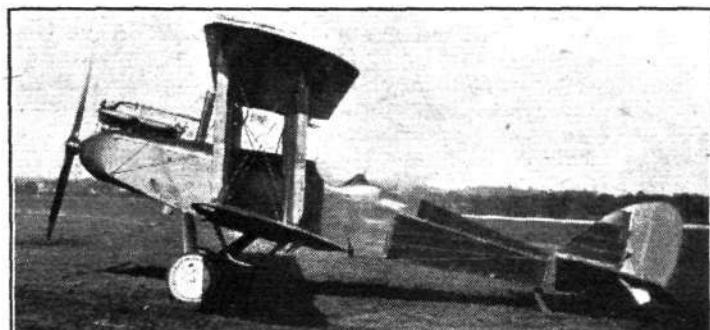
guished by the long slender fuselage projecting far forward of the wings. Two "Kangaroos" have been entered for the King's Cup race—one by the Rt. Hon. Winston Churchill, M.P., to be piloted by Lieut.-Col. Spenser Grey, the other, which will be flown by Mr. R. W. Kenworthy, the Blackburn pilot, by Sir Walter de Frece.

The Bristol 10-Seater.—In its original form, fitted with a Napier "Lion," the Bristol 10-Seater has been in use for several months on the London-Paris service. It is a fairly large machine, with a large cabin, luxuriously finished, accommodating nine passengers. For the race the machine will be fitted with one of the Bristol Company's "Jupiter" engines, of 400 h.p. The 10-seater has been entered by Sir G. Stanley White, and will be flown by Mr. Uwins, the Bristol test pilot. The machine was designed by Mr. Reid, who is now chief designer to the Bristol Company.



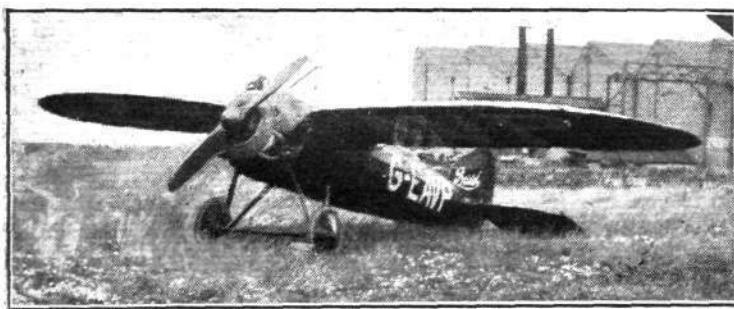
The Bristol 10-seater, 400 h.p. Bristol "Jupiter."

The Bristol Monoplane.—As the winner recently of the Aerial Derby Handicap, the Bristol monoplane with 100 h.p. three-cylinder, air-cooled Bristol "Lucifer" engine will be familiar to our readers. The machine, which was designed by Capt.



D.H.9, 230 h.p. Siddeley "Puma."

Sutherland, to be piloted by Capt. Muir of the Surrey Flying Services, and the other by Col. Darby of the A.D.C., to be flown by Mr. Piercy. The engines fitted are Siddeley "Pumas."



Bristol Monoplane, 100 h.p. Bristol "Lucifer."

Barnwell, is characterised by crescent-shaped wings, and should thus be easily identified. It has been entered by Sir Henry White Smith, and will be flown in the race by Flying Officer R. A. de H. Haig, the famous Martlesham test pilot.

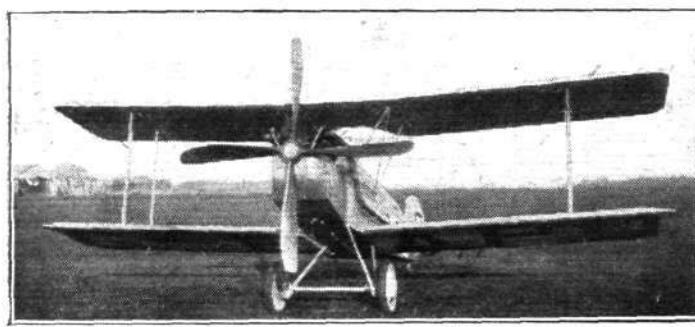
The Boulton and Paul P.9.—This machine was designed some years ago as a general utility 'bus, and in order to keep down cost and running expenses it was fitted with an engine of low power, *i.e.*, 90 h.p. R.A.F. 1A. In spite of this the P.9 is reasonably fast, and is, we understand, very nice to handle. Mr. Frank Courtney keeps one at Croydon for his



D.H.9A, 350 h.p. Rolls-Royce "Eagle."

The D.H. 9A. is generally similar to the standard D.H.9, but has a Rolls-Royce "Eagle" engine instead of the Siddeley "Puma." As the "Eagle" is of 350 h.p. the 9A is naturally a good deal faster than the 9 with 230 h.p., hence it is placed considerably after the 9's in handicap. The 9A has been entered by Lieut.-Col. J. Barrett-Lennard, and will be flown by Mr. H. H. Perry.

The D.H.9B.—Of the variations of the standard D.H.9, the 9B represents, perhaps, least departure from the original design, the main difference being that whereas the standard 9 has but two cockpits, the 9B has three, an extra seat having been added in front of the pilot, between him and the engine. In other respects the 9B is exactly similar to its prototype. The specimen entered for the race has been entered by Capt.



The Boulton and Paul P.9, 90 h.p. R.A.F. 1A.

personal use in travelling about the country on testing bent, and finds it not only very convenient, but also cheap to run. Two of the P.9's have been entered for the race—one by Lieut.-Col. J. E. Tennant, who will pilot the machine himself, and the other by Brig.-Gen. J. G. Weir, whose pilot in the race is Mr. C. T. Holmes.

The D.H.9.—As the prototype of the different variations of D.H.'s, the 9 is of interest in having at one time been turned out in enormous quantities during the War. We have an idea that when production was at its maximum the Aircraft Manufacturing Co. were turning out D.H.9's at the rate of one machine every 40 minutes, or something like that. The type is therefore in existence in large quantities, and for fairly small machines the D.H.9 and its variations have proved as suitable and efficient as it is possible to get a machine of this size. It will be remembered that it was on a machine of this type that Mr. Cobham made all his famous tours in Europe and across to Northern Africa. Two D.H.9's have been entered for the race—one by his Grace the Duke of



The D.H.9B, 230 h.p. Siddeley "Puma."

de Havilland, and will be flown by Mr. Cobham. The engine is a Siddeley "Puma."

The D.H.9C.—If the Avro 504 has appeared with a number of different engines, it may be said about the de Havilland 9 that this machine has been used in a number of variations.



The D.H.9c, 230 h.p. Siddeley "Puma."

Of these the 9C is characterised by a small cabin over the aft cockpit, while the wings have been swept back slightly to bring aft the centre of pressure in order to trim for the weight of a passenger so far aft in the fuselage. The engine fitted is a Siddeley "Puma" of 230 h.p. As all the other D.H. machines, the 9C was designed by Capt. Geoffrey de Havilland. The machine has been entered for the race by Lady Anne Savile, and will be flown by Flying Officer Leslie Hamilton.

The D.H.4A.—When Air Transport and Travel was formed by Mr. Holt Thomas after the Armistice, the conversion of military machines into commercial passenger-carriers was taken in hand, and one of the first cabin machines to be turned out was the D.H.4A, which was practically a standard D.H.4, 350 h.p. Rolls-Royce "Eagle" engine, with a cabin



The D.H.4A, 350 h.p. Rolls-Royce "Eagle."

top added to the fuselage. The type did very good work on the London-Paris line during 1919, and several specimens are still in existence; one of these is owned by the Instone Air Line, and Sir Samuel Instone has entered it for the race. The machine will be piloted by Mr. Barnard, Commodore of the Instone air fleet.

The D.H.37.—Having been described and illustrated in FLIGHT quite recently, the D.H.37 will be well known to our



D.H.37, 275 h.p. Rolls-Royce "Falcon."

readers. It was designed specially for Mr. A. S. Butler, now a director in the de Havilland Aircraft Co., for his personal use, and the designers had in mind a machine on which the owner could occasionally take part in races and on which he could at all times go touring. Thus the machine has a fair turn of speed, a good range, and will carry two passengers in addition to the pilot. Entered by Mr. A. S. Butler, the D.H.37 will be flown in the race by the owner.

The Martinsyde F.6.—Similar in general lines to the famous Martinsyde F.4, the F.6 has a 200 h.p. Wolseley Viper engine



Martinsyde F.6, 200 h.p. Wolseley "Viper."

in place of the 300 h.p. Hispano of the former. It is not therefore, as fast as the higher powered machine, but it is by no means a slow single-seater. The F.6 is the private property of Mr. F. P. Raynham, who will fly it in the race, and as one of our oldest active pilots (as regards number of "ticket," at any rate) every one will wish Raynham the best of luck in the race.

The S.E.5A.—Although certain alterations have been made to the S.E.5A to be flown by Mr. Cyril Turner, this machine being the one that is used for Maj. Savage's famous "sky writing," no great departures from the original design have



S.E.5A, 200 h.p. Wolseley "Viper."

been made. The S.E.5A, which has a 200 h.p. Wolseley "Viper" engine, was designed at the Royal Aircraft Establishment, Farnborough, during the War, and was at one time a favourite single-seater fighter. Mr. H. P. Folland, who is now chief designer to the Gloucestershire Aircraft Co., where he designed the famous Mars I, had a hand in designing the S.E.5A also. Although the machine has been made somewhat heavier for the purposes of sky writing, Maj. Savage has very sportingly entered it for the race for the King's Cup.

The Siddeley "Siskin."—Being designed and built for the R.A.F., the Siddeley "Siskin," with 325 h.p. Siddeley "Jaguar" engine, may not be referred to in detail. For the same reason it has not been possible to include it in our set of scale drawings. The accompanying photograph of an



Siddeley "Siskin," 325 h.p. Siddeley "Jaguar."

early model shows, however, the general lines of the machine. It may be stated that an oleo landing gear is one of its features, and that metal enters largely into the construction.

The Sopwith "Gnu."—Designed shortly after the Armistice, the Sopwith "Gnu" is a relatively small cabin machine, fitted with 110 h.p. le Rhone engine. The first appearance of



Sopwith "Gnu," 110 h.p. le Rhone.

this machine in public was probably on the occasion of the aerial reception at Hendon of the American aviators who had crossed the Atlantic *via* the Azores. Mr. Hawker was then flying the "Gnu," and took up as passenger Miss Daisy King of Leeds, who was the highest bidder for a "flip," having paid 50 guineas for the privilege of flying with Hawker. In the race the machine has been entered by Lieut.-Col. McClean, and it will be piloted by Flight-Lieut. Longton.

The Supermarine "Sea Lion."—As the only amphibian flying boat in the race, no less than on account of its recent winning of the Schneider Cup Race at Naples, considerable interest will naturally attach to the performance of the Super-

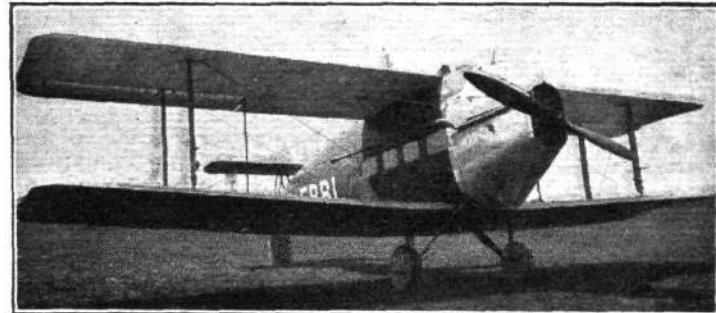


The Supermarine "Sea Lion." 450 h.p. Napier "Lion."

marine "Sea Lion." At Naples the machine was, of course, a flying boat pure and simple, but for the race the amphibian gear will be fitted so as to enable the machine to alight on the prescribed aerodromes. To go across country in a flying boat is a good demonstration of the soundness of the design of the machine, since usually an amphibian is one which is quite at home on one element, but whose alighting on the other is a matter, more or less, of makeshift. The designers of the Supermarine evidently have faith in their machine. It has already demonstrated its seaworthiness, and the race will give it an opportunity of proving what might be termed its landworthiness. Fitted with a Napier "Lion" engine of 450 h.p., the "Sea Lion" is considered the fastest machine in the race and will start scratch. It has been entered by

Mr. Hubert Scott-Paine, of the Supermarine Aviation Works, and will be flown by Capt. Biard, the Schneider Cup winner.*

The Vickers "Vulcan."—As a very full description of the Vickers "Vulcan" was given in our issue of May 4, 1922, no detailed reference need be made to it here. The machine is a commercial aeroplane, with a roomy cabin giving seating accommodation for six passengers. The engine is a 350 h.p. Rolls-Royce "Eagle," and the pilot is placed in front of the upper plane. The "Vulcan," which was designed by Mr. Rex Pierson, Chief Designer of Vickers, has been entered by Mr. Douglas Vickers, and will be flown by Capt. Cockerell, the well-known Vickers pilot.



Vickers "Vulcan," 350 h.p. Rolls-Royce "Eagle."

Subsidiary Prizes

In addition to the King's Cup a number of subsidiary prizes will be awarded, including the following:—£40 (presented by the Corporation of Glasgow) to the first competitor arriving at Glasgow. £25 (presented by the *Manchester Guardian*) to the competitor who accomplishes the fastest handicap time between Glasgow and Manchester. Cup, value £25 (presented by William Kayley, Esq., of Manchester), to the competitor who accomplishes the second fastest handicap time between Glasgow and Manchester. £25 (presented by the *Newcastle Chronicle*) to the competitor who accomplishes the fastest handicap time between Croydon and Newcastle on-Tyne.

* At the moment of going to Press we learn this machine will not start.

THE LONDON-CONTINENTAL SERVICES FLIGHTS BETWEEN AUGUST 6 AND SEPTEMBER 2, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	264	726	82	174	259	3 5	Breguet F-ADBM (1h. 44m.)	B. (8), D.H. 9 (1), D.H. 18 (1), D.H. 34 (7), G. (11), H.P.O-400 (1), W.8B (4), Sp. (6), Vi. (1).
Paris-Croydon ...	267	1082	43	115	248	2 54	D.H. 34 G-EBBT (1h. 54m.)	B. (8), D.H. 18 (1), D.H. 34 (7), G. (11), H.P.O-400 (1), W.8B (4), Sp. (5), Vi. (1).
Croydon-Brussels	40	117	20	20	40	2 21	D.H. 34 G-EBBT (1h. 50m.)	D.H. 18 (1), D.H. 34 (4), Vi. (1), Vu. (1).
Brussels-Croydon	40	249	—	7	38	2 52	D.H. 18 G-EAWX (1h. 21m.)	D.H. 18 (1), D.H. 34 (4), Vi. (1), Vu. (1).
Croydon-Rotterdam-Amsterdam	47	39	46	44	47	2 26	Fokker H-NABM (1h. 56m.)	F. (12).
Amsterdam-Rotterdam-Croydon	45	73	44	44	44	3 2	Fokker H-NABV (2h. 18m.)	F. (12).
Totals for 4 weeks. ...	703	2286	235	404	676			

* Not including "private" flights.

† Including certain diverted journeys.

† Including certain journeys when stops were made *en route*.

§ Rotterdam.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.). F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. Sp. = Spad. Vi. = Vickers Vimy. Vu. = Vickers Vulcan. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Co. des Grandes Expresses Aériennes; Daimler Hire, Ltd.; Handley Page Transport, Ltd.; Instone Air Line; Koninklijke Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

Incidental Flying.—The De Havilland Aircraft Co. maintained a regular bi-daily service between Lympne and Ostend, during the month.

GLIDING, SOARING AND AIR-SAILING

Those wishing to get in touch with others interested in matters relating to gliding and the construction of gliders are invited to write to the Editor of FLIGHT, who will be pleased to publish such communications on this page, in order to bring together those who would like to co-operate, either in forming gliding clubs or in private collaboration.

IN connection with the FLIGHT Designing Competition, particulars of which were published in our issue of last week, we are very gratified to be in a position to announce that two men, very well known in the aviation world, not only in this country, but also abroad, have expressed their willingness to act in conjunction with the Editor, in the capacity of Judges of any designs that may be sent in. Mr. C. R. Fairey, Chairman of the Society of British Aircraft Constructors, and Chairman and Managing Director of the Fairey Aviation Co., has very kindly promised to give up some of his valuable time in order to help forward the cause of gliding; and Mr. F. Handley Page, who needs no introduction to readers of FLIGHT, has also promised to assist us, and to help in any other way in his power. We feel certain that this announcement will be received with satisfaction by all who are contemplating sending in designs for this competition.

ENCOURAGED by the successes attained this year during the French competition at Clermont-Ferrand, and by the German ones in the Rhön Mountains, several new prizes have been offered by French supporters of the new sport. M. André Michelin has offered a prize of 15,000 francs for the longest glide in a straight line. The prize is to be awarded to the pilot who, before October 31 next, has covered the longest distance, provided that distance exceeds 20 kms. (12.5 miles) and the mean gliding angle is not steeper than 1 in 12. If the prize is not won before the end of October, it will automatically be extended until the end of the following month, and so on, until won.

M. LOUIS BREGUET, the famous French constructor, has offered a prize of 15,000 francs for the fastest gliding flight. This prize will be awarded to the French pilot who, using a French machine, attains the greatest speed during a flight of at least one hour's duration. The speed must, in order to qualify a pilot, be in excess of 45 km./h. (28 m.p.h.), and the total drop in altitude from the starting point must not exceed 3,300 ft. for each hour of flight. The competition for the Breguet prize will be open until October 31, 1923.

M. GEORGES DREYFUS has offered a valuable cup, and also a prize of 20,000 francs. This competition is confined to French pilots on French machines, and is divided into two parts. In the first, which is to be completed by April 30, 1923, a prize of 10,000 frs. will be given to the pilot who covers the longest distance in a closed circuit (*i.e.* returning to his starting point). A similar competition is open until April 30, 1924, and for this also a prize of 10,000 frs. will be given. The only difference between the two sets of tests is that for the first a minimum distance of 25 kms. (15.5 miles) is stipulated, while for the second this minimum distance has been increased to 75 kms. (46.5 miles).

At the moment of going to press there is no news of any further entries for the *Daily Mail* competition. From Germany it is reported that steps are to be taken to prevent Herr Martens and Hentzen from participating in the British competition, but nothing definite is known. There is, apparently, a possibility of three of the French pilots coming over for the competition, Bossoutrot with his Farman glider, Barbot with the Dewoitine monoplane, and Coupet with his little cantilever monoplane. We sincerely hope that at least these three French pilots may be able to compete.

As it appears that several potential constructors of gliders are finding considerable difficulty in obtaining wood, especially spruce, we have approached Col. Darby of the Aircraft Disposal Co. at Waddon, and he has kindly agreed to detail a man off to look after intending purchasers of materials, which will be sold to *bona fide* amateur glider constructors at extremely low prices. It is quite conceivable that wings of standard machines could be taken to pieces and the spars lightened for glider wings. Also such metal parts as fittings, strainers, tie-rods and R.A.F. wire will be obtainable very cheaply, Col. Darby being willing, in order to help matters along, to let amateurs have these things at a fee barely

sufficient to cover the expense of having a man looking up the stuff and helping to sort it out.

MR. CATTLE, of the Central Aircraft Co., Kilburn, informs us that his firm has been asked by several people to construct gliders for them to their specification, and that this it has been arranged to do. If any readers are in doubt as to where a glider can be manufactured, we would advise them to write to this firm.

It is rumoured that the de Havilland Aircraft Co. is building a glider of special design, but details are not available at present.

MR. F. J. CAMM informs us that he would be glad to associate himself with any movement for the encouragement of gliding, and would take an active part in connection with any club formed for building and flying gliders. At Windsor, in the old days, Mr. Camm did a good deal of practical work in this connection. Anyone interested is requested to write to Mr. Camm, c/o FLIGHT, and we will see that correspondence is sent on.

A CORRESPONDENT wishes to know whether it would be possible to construct a glider out of an aeroplane wing by adding some form of fuselage. Although it would certainly be possible, we should not advise this course, as the wing of an aeroplane would be designed for very much greater loads than it would be called upon to carry in a glider. Such a wing would, therefore, be needlessly heavy.

QUERIES, OR OTHERWISE, FROM OUR READERS

PILOT AVIATOR J. J. BLAND, 12, Belle Vue Road, Appleby, Westmorland, writes:—

"The hills and broad moorlands about here are splendidly situated for this new sport. Gliding and soaring could be carried out practically every day. I quite believe that with one or two good machines, tuition, etc., could be easily carried out. I should like to hear from anyone who might be interested in this.

"I should also like to know if anyone has a good glider for sale, or power machine minus engine, the machine to be of an efficient type—if possible, the machine to be of an automatic stable type, such as a Dunne, Handley Page or Weiss glider type. If anyone should know of any such machine, or glider, for sale, I should be very glad if they will communicate with me at an early date."

"G. F." (Vauxhall) makes the following suggestions:—

"It has been recently stated that during the War the German General Staff filled up a large aviary in which all sorts of birds were kept; here, it is said, mathematicians and experts watched and noted the performances of the different types of wings.

"Assuming that data of any value may be obtained from this study, may I suggest a better and not dissimilar form of research which might easily give more valuable results?

"Briefly, then, the idea is simply to stretch a cable at very little height across a space of, say, 200 or 300 yds. The glider to be tried is fitted and suspended beneath a small two-wheeled trolley running along the cable, a take-off platform at each end, and whatever the machine the operator can start off on a down glide with some pleasure, knowing he is safe.

"It seems feasible to expect man-glider research should be directed to the least possible wing area as against the tremendous span of the Hentzen Hanover models. These latter must offer so little danger to the operator that they should be more easily learned than a machine with the least possible wing area, but the latter, once learned, would be much more amenable to catch and take immediate advantage of every favourable breeze. As it is foolhardy to jump in the water and expect to swim, so the analogy might just as well be applied to the glider with small wing area first taking the air.

"Again, in the case of so-called freak machines, some of these may prove quite a different proposition after a period of experiment under safe conditions. If it is admitted that the ultimate best type of glider will have small wing area, it seems, with the present method of trying out, that it will be a long time arriving, whereas by some such cable device as above described elimination of the superfluous square feet would be more rapid."

(In cases where a *nom de plume* only is given, the Editor will be pleased to forward any communication to the writer which is sent c/o the Editor of FLIGHT.)

LONDON TERMINAL AERODROME

Monday, September 4.
As a result of final meetings between the Air Ministry and the managements of the various British air-lines, it is now practically certain that the present competition on the London-Paris airway between these firms will be eliminated. An Air Ministry announcement relating to the new services appears on p. 521.

It is, I hear, intended to make the fare to Berlin so cheap that passengers will be attracted to the airway not only because of the saving of time, but also on the score of economy, and although at the present time, owing to the chaotic state of the various money exchanges, it is not anticipated that there will be much in the way of traffic to be obtained from the Germans, the line is perhaps the most important that British enterprise has so far opened up, and the traffic in normal times should be greater than on any of the other lines.

Homeward Tide of Travellers By Air

Passenger traffic has again been very varied. On the whole, the load from the continent is greater than the outward one, the homeward tide having now, apparently, set in. Handley Page Transport have been carrying good average loads for their two services in each direction daily, and the Instone Air Line have been fetching large numbers of air travellers from Brussels to London.

It would hardly be expected that anyone setting out on a long sea voyage would forget such a large article as a cabin trunk. Yet one of these bulky pieces of personal luggage was left behind by a traveller to India, and its loss was not discovered until it was too late to catch a train connecting with the boat at Marseilles. Some bright person then remembered that there was such a thing as an air service to Marseilles, with the result that the trunk was despatched by the Messageries Aériennes on Friday morning, and arrived in Marseilles the same evening in time to catch the steamer, its owner being already on board.

Mr. Alan J. Cobham was at the aerodrome several times last week, taking special passengers on flights to various parts of the continent. He tells me that the De Havilland Aircraft Co. are building a glider, and that he is to fly it. I have since learned that they are building three, one of them being for Mr. E. D. C. Herne, of the Daimler Airway, and that they have managed to get the gliding angle down to 1 in 17.

Two of the machines for the race round Britain for the King's Cup are being erected at the air-station. These are the Duke of Sutherland's D.H.9, which the Surrey Flying Services are erecting, and the Instone Air Line's D.H.4, which has been re-conditioned by the Central Aircraft Co.

In addition, there are, of course, the machines the Aircraft Disposal Co. are supplying, which are being trimmed up at the Aircraft Factory on the other side of the aerodrome.

Now that Mr. Hay is back at the Meteorological Office from leave, the lectures on weather for pilots, in order that they may pass for their licences, are now being given. They take place in the large building which Trust Houses have for any sudden emergency in the shape of a rush of tea orders, or the visits of societies, and are being well attended.

Quick Work with a "Relief" Machine

The Grands Express did a smart bit of work on Tuesday last, when one of their machines, *en route* from Paris to London, alighted at Beauvais. The pilot, not liking the sound of one of his engines, decided that it would be better to descend at Beauvais than to continue on his journey



JULY CONTINENTAL AIR TRAFFIC

THE official report for air traffic during the month of July has been issued by the Air Ministry:—

Traffic on the services operating to and from the London Terminal Aerodrome, Croydon, continued to show an expansion during the month. The number of machines of all nationalities arriving and departing was 711, an increase of nearly one hundred machines over the previous largest monthly figure. The departure and arrival figures were respectively 357 and 354. The three British companies, Handley Page Transport, Ltd., the Instone Air Line, and Daimler Hire, Ltd., operated 446 machines, or nearly 63 per cent. of the total number of aircraft using the aerodrome.

Passengers totalled 1,591, a figure which is considerably less than last year, but the British proportion, which totalled 1,272, is the highest number transported on British machines

further away from his base, and telephoned to Le Bourget for another "Goliath" to be sent for his passengers. This was actually at Beauvais within half-an-hour of the first one's alighting, and the passengers were embarked without the engines being stopped, with the result that the delay was practically negligible.

A new light has now been installed on the aerodrome, and on Friday night, representatives of the Air Ministry, and various foreign air officials visited the aerodrome for an inspection of this light. The light takes the form of a portable searchlight, but special lenses have been fitted which flood the aerodrome with light, instead of merely throwing a more or less parallel beam. The light spreads out at an angle of 180° from the searchlight, so that two or three of these at various corners would illuminate the entire landing surface of the aerodrome.

The Instone Air Line are now running one service in each direction daily between London and Brussels and London and Paris. The Paris service leaves at 11.30 a.m., and returns from Paris at 4 p.m.; while the Brussels service leaves London at 4 p.m., and returns from Brussels the following morning at 11.30. Mr. F. Courtney, who has been flying for them, has now transferred his services to the Daimler Airway, and is acting as spare pilot to that line.

Paris to Varne Lightship in an Hour!

On Thursday, one of the Daimler 34's made a rapid return trip between London and Paris. Leaving London at 1 p.m., it landed at Paris and was re-fuelled, and, with a fresh load of passengers, was back at Croydon shortly after 4.30 p.m. Capt. Herne, who was piloting the machine, told me that he was only an hour flying from Paris to the Varne lightship in mid-Channel.

Today, the K.L.M. revert to their old winter service of one machine in each direction daily. The morning machine at 10 a.m. will still leave Croydon, while the return journey will start from Amsterdam at 2 p.m. This arrangement has not been made because of any falling off in passengers or goods, but is part of the policy of the K.L.M., who were cutting down their services for the winter on October 1, but, owing to the aviation meeting at Rotterdam, where they require several machines, they pushed the date of the winter service forward a month.

The Surrey Flying Service had quite a successful day with joy-riders yesterday, after the morning mist had cleared away. This same morning mist, by the way, is beginning to interfere with the early-morning services. On two days this week the aerodrome has been covered in thick fog up to nearly noon, while only a few miles away, beyond Biggin Hill, the weather has been quite good. Those who believe that the aerodrome should be still nearer London might give this fact their earnest consideration.

Mr. Hyat, of the Grands Express, informs me that his company are prepared to run a special Goliath from Croydon to Paris on Saturday mornings, to connect with their service from Paris to Lausanne, providing there are half-a-dozen passengers. Meanwhile, for the odd passenger, there is the 5.30 a.m. Daimler newspaper machine, which arrives in Paris in time to connect with the Grands Express machine from Paris to Lausanne. The early-morning Daimler newspaper machine continues to run with absolute regularity, being in Paris each morning within a few minutes of 7.30 a.m., and I understand that the newspapers are so satisfied with the regularity of the service that it is to be continued through the winter.



during any month since Continental services were inaugurated. The total weight of goods carried showed an increase over any previous month, the quantity of newspapers, mails and general goods being 73.3 tons, of which the greater proportion was carried in British aeroplanes. The largest increase is shown in the newspaper traffic, which contributed 34.3 tons of the total. The efficiency of British services continues to be of a high standard—the percentage of flights carried out on the London-Paris route being nearly 96 per cent.

While British companies continue to secure the greater proportion of all classes of traffic, it has to be noted that the machines are still obtaining only a small proportion of the traffic required to operate on a sound commercial basis, the passenger accommodation utilised on British aircraft being only 36 per cent. of the available space and the useful cargo capacity used only 47 per cent.

N.A.C.A. CONTROL POSITION RECORDER*

By F. H. Norton

It is now a matter of some six or seven years since Mr. (now Comdr.) G. M. Dyott invented and constructed an instrument for recording the movements made by the control lever of an aeroplane during flight. This instrument was

aeroplane. The records are taken photographically on a standard N.A.C.A. film drum, and the instrument can be quickly installed in any aeroplane. The instrument is of value not only for scientific research on stability and con-

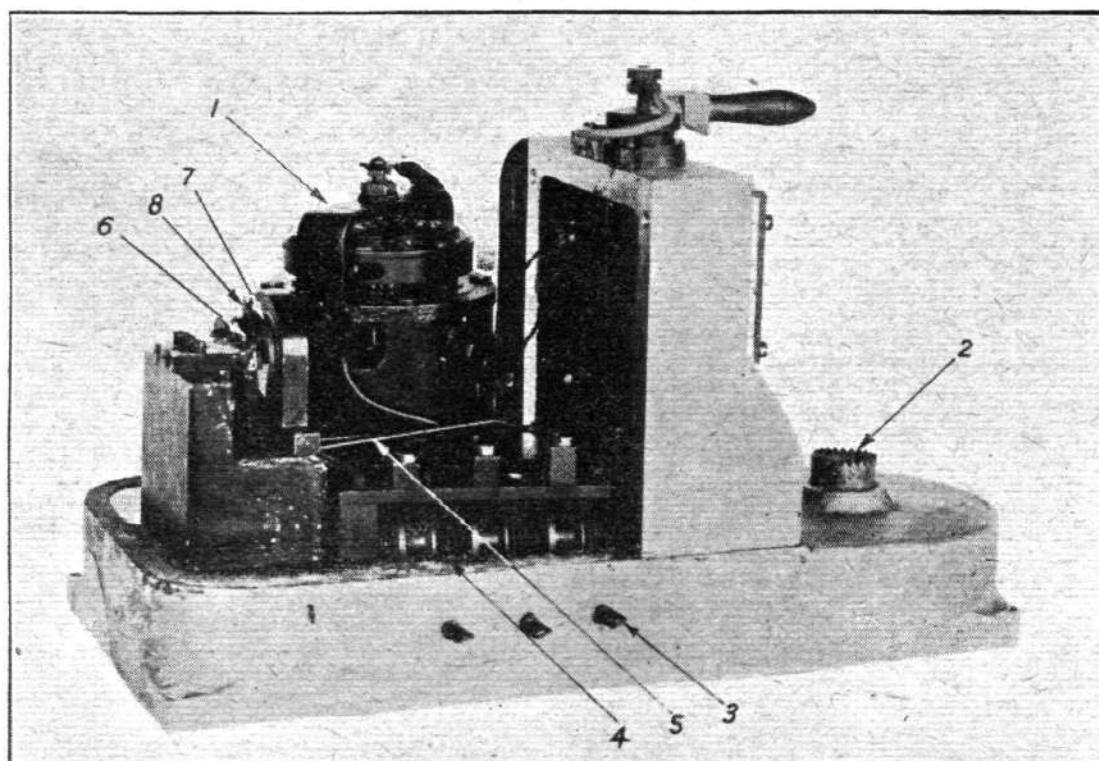


Fig. 1.—The N.A.C.A. Control Position Recorder.

fitted on the little Dyott monoplane, and some very interesting records were obtained. The instrument described below is, of course, of a much more refined character than was Dyott's, but already as long ago as 1913 or 1914 Dyott realised the information which could be obtained in this way. As no instrument was available at that time, he set to work and

trollability, but also as a means of checking up the flying of pilots.

The instrument, as shown in Fig. 1, consists essentially of the base-plate and film-drum mounting used on all the N.A.C.A. recording instruments. The constant-speed driving motor (1) rotates the film clutch (2) at a speed of about

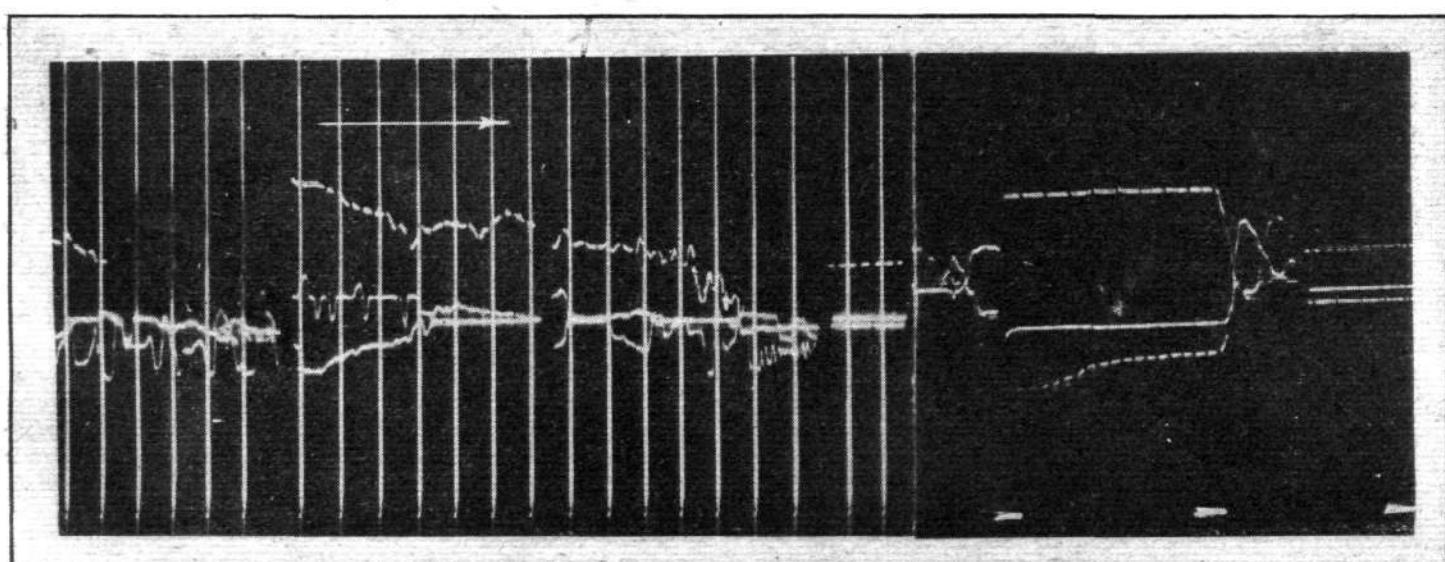


Fig. 2.—Records obtained with the Control Position Recorder.

made one for himself. We are pleased to see that the subject is still receiving attention in modern times.—ED., FLIGHT.]

A new instrument is described which is capable of simultaneously recording the position of the three controls of an

*Technical Note No. 97 of American National Advisory Committee for Aeronautics.

1 r.p.m. through worm gearing in the base. The motion of the controls is transmitted to the instrument through the cords (3), which are wrapped around three drums (4). The drums are mounted on a horizontal screw, and contain a spiral spring which keeps the cords wound tightly. Thus a 12-in. motion on the end of the cord is converted into a

16-in. lateral motion of the drum. This motion is transmitted by a system of levers (5) to the three mirrors (6), which reflect the light beam on to the film through the lens (7) in the same way as with the other N.A.C.A. recording instruments. As three separate records are superimposed on one film, it is necessary to have some way of distinguishing between them. This is accomplished by revolving slowly in front of two of the mirrors a sector shutter (8). One mirror therefore gives a continuous line, one a dotted line and one a dash line.

The cords can be connected directly to any convenient portion of the control system, but if it is desired to have a high degree of accuracy it is advisable to run small steel wires to the control horns so that any backlash in the control systems may be eliminated. If this is done a precision of $\frac{1}{10}$ can be easily obtained, and this is quite sufficient for any ordinary work. The instrument is calibrated in place by setting the control surfaces to given angles and taking a short record on the film for each setting.

Some records taken by this instrument on a J.N.4h are shown in Fig. 2. Although they are not as clear as the original film, the different records can be distinguished. The curves are usually replotted by measuring the distances on the film

from the zero line and then multiplying by the calibration constant to give the true angle in degrees. These angles are then plotted against a time base so as to agree with the records from other instruments. The record of the landing shows the three-second vertical timing lines placed on the film by a light in the instrument case, which is connected, together with timing lights in other instruments, to an electric chronometer.

This instrument has been used mainly by the National Advisory Committee for Aeronautics in the study of stability, controllability and manœuvrability. For this work a knowledge of the position of the controls is essential, but the method formerly used of reading the angle visually was too slow and inaccurate for most of the work. This instrument will obtain more data in a few minutes' flight than could be obtained before in flights of many hours, so that the cost of this kind of research has been greatly reduced by this means. Another use of this instrument is for the study of control movements in various types of manœuvres. This is quite important, as the pilot cannot remember exactly how he moves his controls in order to execute a given stunt. It would also be of considerable value to check up on new pilots and to show them how their execution of a manœuvre differs from that of a skilled pilot.

NOTICES TO AIRMEN

Prohibited Area at Chalais-Meudon

1. In consequence of the dangers resulting from the frequent ascents of and altitudes attained by the captive balloons flown from the Chalais-Meudon establishment (south-west of Paris and east of Versailles), all aircraft are prohibited from flying at any altitude over the area defined by the following points:—

To the South.—The village of Petit Bicestre (on the Versailles-Choisy le Roi road).

To the West.—“La Garenne de Villacoublay,” “La Grange Dame Rose” and “l’Etang des Fonceaux.”

To the North.—That part of the Paris-Montparnasse-Versailles railway from Bellevue Station to the Meudon viaduct.

To the East.—The north-east edge of the Clamart wood and the road from Chatillon to Le Petit Bicestre.

2. Previous notice affected: Notice to Airmen No. 44 of 1922.

(No. 87 of 1922.)

Belgium: Circuit Rule for Aircraft in the Vicinity of State Aerodromes

1. In future all circuits made by aircraft on departing from public aerodromes owned by the Belgian State shall be left-handed, i.e., anti-clockwise.

In the event of there being an exception to this rule, a further notice will be issued.

2. Authority.—Belgian Notice to Airmen No. 12 of 1922.

(No. 95 of 1922.)

NOTICE TO GROUND ENGINEERS

Inspection and Certification of Instruments

1. The attention of Ground Engineers is directed to Article 11 and Schedule II, para. 8, of the Air Navigation Order, 1922, and to paras. 29, 35, 37, 41, 42 and 43 of the Air Navigation Directions, 1922 (A.N.D. 3), in so far as these relate to the instruments to be carried by British flying machines registered in the British Islands, and to the inspection and certification of such instruments. These publications may be obtained direct from H.M. Stationery Office, Imperial House, Kingsway, W.C. 2, or through any bookseller, at a cost of 11d. and 3d. respectively.

2. It will be observed that on and after November 1, 1922, certain instruments must be carried by all British flying machines registered in the British Islands, and that the inspection and certification of such instruments before flight, in accordance with Schedule II, para. 8, of the Order, must be carried out, except in the case of the instruments specified in (d) of para. 35 of the Directions (A.N.D. 3), by a Ground Engineer licensed in Category E.

3. Arrangements have accordingly been made whereby licensed Ground Engineers who are desirous of having their licences extended to cover Category E—inspection of the instruments other than those specified in (d) of para. 35 of the Air Navigation Directions, 1922 (A.N.D. 3)—can undergo examination for this purpose. These examinations will be held in London from September 1 onwards. In the case of Ground Engineers operating at the London Terminal Aerodrome, Croydon, arrangements will be made for the examination to take place at that station, while in the case of Ground Engineers operating in the provinces, examinations may be arranged during October if the number of applications received is sufficient to warrant special “Boards” in pro-

vincial centres. Applications for examination should be made to the Secretary (D.C.A.), Air Ministry, and should be accompanied by the necessary fee of 5s. Candidates will be informed of the date and time fixed for examination.

4. Applicants for licences under this category may apply to be licensed for all the instruments specified in paras. 41 and 42 of the Air Navigation Directions, 1922 (A.N.D. 3), other than those specified in (d) of para. 35 thereof, or for such instruments only as the nature of their employment may require them to certify. The minimum requirements for a licence will be ability to pass an examination in the following instruments, which must be carried by all flying machines: Air speed indicator, altimeter, gauges, revolution indicator.

5. The examinations will be based on the following syllabus:—

(1) *Air Speed Indicator.*—General principles of construction and operation—Installation of indicator and pitot head in the aircraft—Pipe lines—Methods of testing—Detection and rectification of defects in installation.

(2) *Altimeter.*—General principles of construction and operation—Installation in aircraft—Method of testing.

(3) *Gauges* (including air and oil pressure gauges and radiator thermometer).—General principles of construction and operation—Installation in aircraft—Methods of test.

(4) *Revolution Indicator.*—General principles of construction and operation—Installation in aircraft—Causes of failure to function.

(5) *Indicator of Wheel Position.*—General principles of operation.

(6) *Compass.*—General principles of construction and operation—Installation in aircraft—“Swinging” of compass—Maintenance and minor adjustments.

(7) *Turning Indicator.*—General principles of construction and operation of the various types—Installation in aircraft—Methods of testing and minor adjustments to installation.

(8) *Watch.*—Installation in aircraft—Setting and adjustments.

(9) *Lighting Set* (including navigation lights, landing lights and illumination of instruments).—General principles of lay-out and installation in aircraft—Wiring diagrams—Tracing of defects—Care and maintenance of instruments, connections and accumulators.

General knowledge of standard requirements with regard to electrical installation in aircraft.

(10) *Electrical Bonding* (in the case of aircraft fitted with Wireless Apparatus).—Methods of jointing—Points where bonding is necessary and position of same—Methods of testing for electrical continuity—External wiring of approved wireless apparatus—General knowledge of standard requirements with regard to electrical installation in aircraft.

(11) *Drift Indicator.*—General principles of construction and correct methods of installation in aircraft.

6. The descriptive handbook issued as Air Publication 388, “General Instrument and Oxygen Equipment” (1921), will be of use to candidates for this examination. This handbook may be obtained direct from H.M. Stationery Office, Imperial House, Kingsway, W.C. 2, or through any bookseller, price 5s. net.

(No. 9 of 1922.)

AIRSHIPS FROM THE FOUR WINDS

NOTICE that a large portion of the Eastleigh Aircraft Acceptance Park is being acquired by a new company, the Atlantic Park Hostel Co., Ltd., with a capital one pound short of £100,000—to wit, £99,999. And in agreement with this company such small fry are concerned as the Oceanic Steam Navigation Co., Cunard Steamship Co. and the Canadian Pacific Railway Co. As there is mighty little that the company do not take power to carry on with, including being "caterers for passengers by aeroplane or otherwise," there is evidently something in the wind, even if it is not the immediate foundation of an air line across the Atlantic.

AMONGST many interesting announcements of new books from the house of Hutchinson is "H. G. Hawker, Airman: His Life and Work." The compilation is by Muriel Hawker, and it is to be issued shortly in a single volume. There should be a big demand for the work; Harry Hawker was a much-loved man.

ONE of nature's fliers the other day came very gracefully to the assistance of man—the invader of the "birds' realm. It was the outcome of a mishap off Antibes, in the Mediterranean, when a seaplane on a flight from Corsica, owing to a damaged propeller, was "landed" *hors de combat* in the water. A carrier pigeon whose home was Antibes was released with notification of the trouble, and with great promptitude boats and another 'plane were at the work of rescue. It matters not to our story that in the meanwhile the occupants, M. Orsini and his wife, had been picked up by a British steamer. The feathered partner in the trip had duly justified his place as the third in the boat.

It is encouraging to hear that *visas* on passports of pilots of cars, aeroplanes and airships arriving from and going to France and England have been abolished by the Italian Government.

CAPT. MACMILLAN and Mr. Malins leave Calcutta this week on board the *Nellore*, having sufficiently recovered from their seaplane experiences in the Bay of Bengal. A different route home will, according to the same authority, be taken by Maj. Blake.

THE evidence adduced and the statement from Major Luard, R.E., in *The Times* recently, as to the deplorable state of the R.A.F. in India is very welcome, as bringing into focus this scandal which has so long been an object of wonder. That it was high time an investigation was made forced itself upon our "rulers" some months ago, and the report of Sir John Salmond upon the whole wretched business, which may be expected in October, should compel an entire reorganisation of the force without a moment's delay. Vast potentialities rest upon adequate action being set in motion. In spite of the tragic facts which have emerged perhaps nothing tells like ridicule in a situation like this, and the happy skit upon the subject which has been sent in by "A Retired Colonel," extracted from a letter from his son in the Indian R.A.F. should appeal to everybody who is of opinion that the Government should play "cricket" with those who are taking their daily risks in maintaining the prestige of our Empire in such a vital section of it as India. The Air Ministry are helpless in the matter. It is the Government plus diplomacy that is to blame. Here is the extract, which bears the date of May 20 last:—

"A really remarkable letter came from Wing H.Q. this morning saying that no engines could be expected from K—— for the present, and that squadrons were to do all their own repairs, but that on no account was one engine to be "robbed" to make another serviceable. As there are no spares available in the country, the answer would appear to be the proverbial lemon. When I saw that letter I sat down and wrote a little skit:—

"SCENE: Any R.A.F. station in India. Time, 1924.

"A group of pilots are talking outside a single hangar.

"Flight-Lieut.-Commander.—You're to go up next, Jones. As soon as Smith comes down, get the squadron propeller from him and go up. That all right?

"First Pilot.—Nothing doing, I'm afraid. Brown borrowed my elevator for that last show at Wana, and you know he crashed. Anybody lend me an elevator?

"Second Pilot.—Yes I will, if you'll let me have your

shock absorber. I find that a couple of handkerchiefs and a bootlace are a poor substitute.

"Flight-Commander.—Well, fix it up among yourselves, only don't borrow my tail skid; it's the only decent one in India.

"Second Pilot.—Hi! steady. You know you promised to lend me the magneto for my machine. Hullo, old Smith's landed. His engine sounded as if it were missing a bit. What's the matter with it, old boy?

"Fourth Pilot.—Oh! she's a bit rough, that's all. I had to send a couple of my cylinders to the squadron at A——, as they haven't got any. Still, petrol tins are nearly as good, you know. And, I say, Jones, you can take your old machine out of that hangar. You know it's my turn today for it.

"All together.—Who wouldn't sell his little farm and come to India?

"*Exeunt omnes.*"

PASSING back from the ridiculous to the tragic side of the problem, the pathetic communication from Mrs. Helen R. Warren, giving an extract from a letter dated "Risalpur, August 10, 1922," from her son, Flight Officer David Chalmers Duncan, 27th Squadron, seven days before he was reported killed, is a fitting indictment of *someone*, however highly placed, who should be counted responsible for such a desperate state of things. The extract is as follows:—

"The tribes around Makin, in Waziristan, have started to cut up rough again, so we have got to bomb them again, and it is to be a ten days' intensive bombing show, so we are moving four machines up to Dardoni just up the Tochi Valley from Bannu. I am taking mine off tomorrow, all being well—that is, if the shock absorber for the wheels arrives tonight, and then we are to stay in tents at Dardoni for ten days and bomb each day, if not twice a day. We are to do our own work, as we cannot take mechanics—there is no room except for our observers.

"It is a disgraceful state of affairs in India. There is no shock absorber for D.H.9A, and it is a vital thing in a machine, as it cannot land without it. Someone has blundered, so we are waiting for some very thin stuff to arrive by the mail tonight from Lahore. This thin stuff will not last long. Still, we must carry on with it just now until someone wakes up. All leave is cancelled. Oh! what a happy family is ours! Eh?

"I have been working all day on my machine as I do not want to come down amongst the Abdul Raheus, as one would not get back; that is certain. Yet one has to trust to a deuce of a lot out of any old machine. Still, it should be good fun, and I pray I am lucky, as I do not want to come down again in tribal country as on Christmas Day, 1919, when I had to run like —— for my life and then nearly lost it, for snipers.

"Still, all misses are as good as miles, and the papers said then that I did the mile in record time. No, my boat is getting too near for chances. Eh? But don't be anxious.

AND this is the type of cheery officer which is being sent west by incompetent—not to say worse—bureaucracy. The pathos of it all!

In this little island of ours it is difficult for the uninitiated to visualise what forest fires mean in Canada. By way of an item, no less than 1,000 such fires, representing the loss of millions, are recorded for this season alone, British Columbia heading the list for numbers. Hitherto one of the greatest difficulties has been to "locate" these devastating conflagrations, and from time to time we have noted cases in which the ever-growing help of the aeroplane has been successfully called in for this purpose—enabling days to be saved in coping with these quickly-spreading fires. Another striking instance is now to hand from Vancouver Island. At the end of July a fire was reported menacing valuable green timber near Buttle Lake. On the evening the report was received an aeroplane left Vancouver for Campbell River, on Vancouver Island, to pick up equipment and men. A crew of seven fire-fighters with a portable gas pump, 2,000 ft. of hose, picks, shovels and axes and saws sufficient to supply a dozen men, were landed at the scene of the fire late the next afternoon. From the time the fire was reported to the time it was extinguished three days only elapsed. Without an aeroplane the journey alone would have occupied three days, and it would have been impossible to have taken the gas pump, which weighed 125 lbs., without making a trail 14 miles long through the forest.



London Gazette, August 29, 1922

General Duties Branch

Lieut. G. D. B. Russell, Royal Dublin Fus., granted temp. comm. Flying Offr. on sec. four years' duty with the R.A.F.; Aug. 16. Sqdn.-Ldr. G. H. Thomson, O.B.E. (Pay Lieut.-Cmdr.), R.N., rem. attach. for further year's duty with R.A.F.; Aug. 1. Flying Offr. E. G. F. Hall, Lieut., R.G.A., resigns temp. commn. return to Army duty; Aug. 15. Flying Offr. T. K. Breakell resigns his short service commn.; Aug. 1, 1922.

Stores Branch

Flying Offr. C. H. Pownall transferred to Stores Branch from G.D.B.; July 17.

Medical Service

The following are granted short service commns. as Flight-Lieuts. from dates indicated:—J. K. R. Landells, M.B.; Aug. 16. J. A. Musgrave; Aug. 17 (seny. as dated). C. A. Harrison granted temp. commn. as Flight-Lieut. from (and seny.) Aug. 8.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified:—
Wing Commanders: J. Mead, C.B.E., M.C., from Inland Area Aircraft Depot (Inland Area) to R.A.F. Depot (Inland Area). (Supernumerary.) 1.9.22. G. P. Grenfell, D.S.O., from R.A.F. Depot (Inland Area) to half-pay list. 14.8.22. Substituted for the previous notification dated 28.8.22, wherein this officer was posted as above stated, with effect from 1.8.22.

Squadrons Leaders: R. E. Saul, D.F.C., from Iraq Group Headquarters (Middle East Area) to Headquarters Iraq Group. 1.2.22. K. C. Buss, from Iraq Group Headquarters (Middle East Area) to Headquarters, Iraq Group. 1.2.22. H. J. Down, from Central Pay Office (Inland Area) to Headquarters (Coastal Area). (Supernumerary.) 14.7.22. T. H. Evans, from Central Pay Office (Inland Area) to Headquarters (Coastal Area). (Supernumerary.) 14.7.22. W. Millett (Stores) to Headquarters, R.A.F. Iraq. 22.4.22. R. H. Peck, O.B.E., to Headquarters, R.A.F. Iraq. 29.5.22. J. C. P. Wood, from R.A.F. Depot (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. T. F. Bullen, O.B.E., from Engine Repair Depot (Middle East) to Command Mechanical Transport Workshop and Pool, Palestine (Middle East). 8.7.22. P. Babington, from Headquarters (Coastal Area) to Air Ministry (D. of P.). 1.8.22.

Flight Lieutenants: P. G. Scott, from No. 31 Squadron (India) to No. 27 Squadron (India). 5.1.22. G. H. Hall, A.F.C., from Iraq Group Headquarters (Middle East Area) to Headquarters (Iraq Group). 1.2.22. R. T. Nevill, from Iraq Group Headquarters (Middle East Area) to Headquarters, (Iraq Group). 1.2.22. E. Drudge, M.B.E., from Headquarters, R.A.F., Iraq to R.A.F. Depot (Inland Area). (Supernumerary.) 9.7.22. J. C. Atkinson, from Aircraft Depot (Iraq) to R.A.F. Depot (Inland Area). (Super-

Chaplains' Branch

The Rev. J. S. Hobson resigns; Aug. 31.

Memorandum

The permn. granted to Lieut. F. W. J. Collier to ret. rank Lieut. withdrawn on his joining Army; July 25.

London Gazette, September 1, 1922

Air Commodore T. C. R. Higgins, C.M.G., to be Director of Training and Staff Duties, Air Ministry; Sept. 1.

General Duties Branch

The following Wing-Comdrs. are placed on half-pay. Scale A:—G. P. Grenfell, D.S.O.; Aug. 14 (substituted for Gazette, Aug. 8). D. A. Oliver, D.S.O., O.B.E.; Sept. 1.

Stores Branch

Flying Offr. P. D. Chisholm-Taylor is dismissed the Service by sentence of General Court-Martial; Aug. 17.

numerary.) 9.7.22. (Acting Wing Commander) L. J. Lightfoot, O.B.E., from Army (R.A.P.C.) to R.A.F. Depot (Inland Area). (Supernumerary.) 14.8.22. G. R. A. Deacon, M.C., from Flying Wing, Cranwell to Electrical and Wireless School (Inland Area). 25.9.22. D. R. E. Thompson, from R.A.F. Depot (Inland Area) to Electrical and Wireless School (Inland Area). 25.9.22. S. S. Benson, A.F.C., from R.A.F. Depot (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. E. L. Howard-Williams, M.C., No. 25 Squadron (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. C. H. Awock, O.B.E., from Electrical and Wireless School (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. C. E. W. Lockyer, from No. 207 Squadron (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. E. B. Mason, from No. 25 Squadron (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. J. F. A. Day, A.F.C., from No. 1 Flying Training School (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. O. C. Bryson, M.C., D.F.C., A.M., from R.A.F. Base, Gosport (No. 210 Squadron) (Coastal Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. R. M. Treventhan, M.C., from No. 207 Squadron (Inland Area) to School of Photography (Inland Area). (Supernumerary.) 25.9.22. R. S. Sugden, A.F.C., from Electrical and Wireless School (Inland Area) to Command School of Balloon Training (Inland Area). 11.8.22. M. J. James, M.B.E., from No. 70 Squadron (Iraq) to Egyptian Group Headquarters (Middle East). 22.7.22. D. J. Jones, M.B., to Research Laboratory and Medical Officers' School of Instruction (Coastal Area). 21.8.22. D. Drover, from Air Ministry (D. of R.) to R.A.F. Depot (Inland Area). 1.9.22.

AIR SERVICES

The routes to be operated under the new scheme will be:—
London-Paris, by Handley Page Transport, Ltd.
London-Brussels-Cologne, by the Instone Air Line.
London-Amsterdam-Bremen-Berlin by Daimler Hire, Ltd.
(subject to further negotiation).

Southampton-Cherbourg and Channel Islands, by a new company (not to be opened till next spring).

The approximate lengths of the different routes are London-Paris, 225 miles; London-Brussels-Cologne, 310 miles; London-Berlin, 570 miles; and Southampton, Cherbourg, Channel Islands, 120 miles. The number of routes operated and the mileage flown by British firms will therefore be greatly increased. It is hoped that services under the revised scheme will come into operation during September.

NEW BRITISH

THE Air Ministry announces that as a result of the experience gained during the past six months the Air Council has decided, with the concurrence of the Lords Commissioners of His Majesty's Treasury, to modify the system under which subsidies are at present granted to approved firms for the operation of the Cross-Channel routes.

The new scheme provides for the elimination of the present competition between British firms by the allocation of a separate route to each Company. The basis on which the subsidy (which is still limited to the sum of £200,000 per annum) will be given is a limited cash payment for the completion of a stipulated number of flights and a contribution in cash or in kind towards the maintenance of a fleet of approved size and value.

The R.A.F. Club Eastbourne Cricket Week

THIS fixture—September 20 to 26—at Eastbourne, organised by the R.A.F. Club, promises to be a big success, which is good hearing, as any profit goes to that excellent object the R.A.F. Memorial Fund for the dependents of fallen airmen. Inclusive tickets are available only to members of the club, but a special enclosure will be provided for past or present members of the R.A.F. who desire to attend the festival.

The teams for the first match, beginning Wednesday, September 20, are as follows:—

NORTH: A. W. Carr (Notts), captain, F. W. Musson (Lancs), Hon. F. S. G. Calthorpe (Warwick), Holmes (Yorks), Kilner, R. (Yorks), Waddington (Yorks), Oates (Notts), Gunn, G. (Notts), Tyldesley, E. (Lancs), Parkin (Lancs), Geary (Leicester).

SOUTH: Rev. F. H. Gillingham (Essex), Hon. L. H. Tennyson (Hants), P. G. H. Fender (Surrey), A. E. R. Gilligan (Sussex), A. H. H. Gilligan (Sussex), N. Haig (Middlesex), Hobbs (Surrey), Woolley, F. E. (Kent), Hardinge (Kent), Parker (Gloucester), Livesey (Hants).

On Saturday, September 23, a match will be begun between the following:—

ROYAL AIR FORCE (EX-SERVICE) ELEVEN: P. G. H. Fender

(Surrey), captain, A. Jeacocke (Surrey), A. H. H. Gilligan (Sussex), F. W. Musson (Lancs), S. L. Amor (Somerset), Hobbs (Surrey), Woolley, F. E. (Kent), Hardinge (Kent), Geary (Leicester), Parker (Gloucester), Waddington (Yorks).

REST OF ENGLAND: Hon. L. H. Tennyson (Hants), captain, A. E. R. Gilligan (Sussex), A. W. Carr (Notts), Rev. F. H. Gillingham (Essex), N. Haig (Middlesex), M. Howell (Surrey), Tyldesley, E. (Lancs), Parkin (Lancs), Kilner, R. (Yorks), Gunn, G. (Notts), Livesey (Hants).

Cricket in Fairey Land

A VERY successful cricket match was played on Wednesday, August 30 last, between the Hayes and District Works' Cricket League (President, C. R. Fairey, Esq.) and J. W. Hearne's XI team, the match being held on the Fairey Aviation Ground. A large number of people were present, and some very fine play on both sides was witnessed. P. E. Nye batted splendidly for the League team, which made 105, whilst Hearne's total was 327, out of which N. Haig made 118. After the match Mr. C. R. Fairey took both teams over the Fairey Aviation Works, the visitors showing great interest in the large flying boat which is being constructed. Both teams were then entertained to dinner, at which Mr. Fairey presided, and a string band helped to finish off the day in a most happy and enjoyable manner.

SOCIETY OF MODEL AERONAUTICAL ENGINEERS (London Aero-Models Association.)

ON Sunday, August 27, at Wanstead Flats, Mr. C. Hersom's twin-pusher model made a flight of 210 secs.—out of sight. This proves with the previous performances of same that the model is very consistent, and puts away all suggestions that the record of 247 secs. put up on August 20 was a fluke performance.

On September 3, at Wimbledon Common, Mr. D. A. Pavely put up a new record for a compressed-air driven model, 63½ secs., beating his previous record of 53 secs. The following is the report received from the Competition Secretary, who witnessed the performance in conjunction with Mr. F. de P. Green:—"Weather fine, light wind. First performance: Left-hand circle, good climb; pressure in tank, 173 lbs. per sq. in.; duration, 53½ secs. Second performance: Straight and good climb; pressure in tank, 176 lbs.; duration, 59½ secs. Third performance: High climb, right-hand circle; pressure in tank, 179 lbs.; duration, 63½ secs. The weight of Mr. Pavely's machine is 4 lbs., the loading 12 ozs. per sq. ft. and the span 7 ft."

Mr. F. de P. Green also reports that he witnessed on Parliament Hill Fields, on September 3, Mr. Rippon and Mr. Burchell put up a gliding performance of 30 secs., each with ordinary tractor models with propellers and rudders removed.

The Research Committee have been working on various matters recently, and their Secretary will have some useful data to put before the Society at an early date.

Members' attention is directed to General Rule No. 3 and Competition Rule No. 3.

September 16 competition for Mr. Felix Kelly's Cup will be held on Wimbledon Common. Please let the Competition Secretary have details of your entry.

Hon. Sec., A. E. Jones, 48, Narcissus Road, West Hampstead, N.W. 6.

Headquarters, 20, Great Windmill Street, Piccadilly Circus, W. 1, every Thursday, 7.30 p.m. Anyone interested in aeronautics is invited to attend.



London-Holland Daily Air-Mail

THE Postmaster-General announces that the dispatch of letters and parcels from London to Holland by afternoon aeroplane has now ceased. The dispatch by the morning aeroplane, both of letters and of parcels, will be maintained.

British 'Planes Cross the Andes

FROM Valparaiso it is reported that two Chilean military airmen, Capt. Aracena and Capt. Barahona, using British machines, left Santiago de Chile on August 29 to fly to Rio de Janeiro, 1,825 miles across the Continent, there to deliver a message of congratulation to the Brazilian Army on the occasion of the Brazilian Centenary celebrations. They crossed the Andes successfully; the temperature was 15° below zero.

Bad weather then drove them down. Capt. Aracena landed at Mendoza, 112 miles from Santiago. Capt. Barahona, losing sight of his companion, alighted at San Juan, 186 miles from Santiago.

Exploring New Guinea from the Air

CAPT. FRANK HURLEY is reported from Melbourne as the leader of an exploring party, including an ethnologist and a naturalist, which has left Sydney for Port Moresby to explore New Guinea from the air. A wealthy resident of Sydney, Mr. L. Hordern, it is stated, has provided two seaplanes, one of which is already in New Guinea, while the other is being conveyed in the steamer with Capt. Hurley.

It is proposed to leave Port Moresby towards the end of September for the Fly River and to make a four months' air survey of the western portions of British New Guinea. The scientific section will navigate the Fly River in a ketch. The party has further plans, but they will depend upon the behaviour of the seaplanes.

Successful Cleveland-Detroit Air Service

A DAILY (Sundays excepted) service between Cleveland and Detroit has been run by the Aeromarine Airways, Inc., from July 17 last, and from this date up to August 17 624 passengers were carried, in addition to 150 passengers on other extra flights, outside the regular service. The big Aeromarine flying boats employed on this service crossed the lake 114 times. In addition to this regular service 16 special-charter flights were made during this period. On these latter flights the following places were visited by air: Toledo, Eire, Pa., Put-in Bay, Ponchartrain Hotel on Lake St. Clair, and the Old Club on St. Clair Flats.

On some of the flights the boats were equipped with radio, and the passengers were entertained by music, baseball scores, and the regular broadcasting programme.

Strengthening Anglo-American Friendship

SIR CHARLES WAKEFIELD sailed for America on Saturday last on board the *Adriatic*, at the head of an influential delegation from the Sulgrave Institution. The mission of this delegation, which includes amongst others Lady and Miss Wakefield, Sir Arthur Haworth and Lady Haworth, Sir Wm. Letts, Mr. Harold Spender, etc., is to promote Anglo-American friendship and understanding throughout the United States and Canada.



PUBLICATIONS RECEIVED

Annual Report of the Smithsonian Institution, 1920. Smithsonian Institution, Washington, U.S.A.

Premier Congrès International de la Navigation Aérienne, Paris—15-25 Novembre, 1921. Chambre Syndicale des Industries Aéronautiques, 9, rue Anatole-de-la-Forge, Paris. Price 60 fr.

Aeronautical Research Committee Reports and Memoranda, No. 785 (Ae.38). Experiments with Model Flying Boat Hulls and Seaplane Floats. 22nd Series Report. By E. M. Keary, A.I.N.A. London: H.M. Stationery Office, Imperial House, Kingsway, W.C.2. Price 1s. net. By post 1s. 1d.

"Aluminium Sections." *Calendar, September, 1922, to August, 1923.* The British Aluminium Co., Ltd., 109, Queen Victoria Street, London, E.C. 4.

Technical Note No. 88. Test of Oil Scraper Piston Ring and Piston Fitted with Oil Drain Holes. By H. S. McDowell. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 102. Skin Frictional Resistance of Plane Surfaces in Air: Abstract of Recent German Tests, with Notes. By W. S. Diehl. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 103. Simple Formula for Estimating Airplane Ceilings. By Walter S. Diehl. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note No. 104. Notes on Aerodynamic Forces. I. Rectilinear Motion. By Max Munk. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Technical Note, No. 105. Notes on Aerodynamic Forces—II. Curvilinear Motion. By Max M. Munk. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

Catalogue

Small Tools for Engineering and Workshop Use. T. C. Jones and Co., Ltd., Shepherd's Bush, W. 12.



AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

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- 15,112. F. W. BALDWIN. Hydroplanes. (184,303.)
- 16,280. A. E. HAGO and DE HAVILLAND AIRCRAFT CO., LTD. Aileron control mechanism. (184,317.)
- 19,022. LUFTSCHIFFBAU ZEPPELIN GES. Gas-outlets for airships. (184,348.)
- 19,023. LUFTSCHIFFBAU ZEPPELIN GES. Safety-valves for gas-cells of airships. (184,349.)

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- 1,285. E. OEHMICHEN. Screw propellers. (174,090.)

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